International Standard

ISO 6438

Documentation — African coded character set for bibliographic information interchange

Documentation — Jeu de caractères africains codés pour l'échange d'informations bibliographiques

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of developing International Standards is carried out through ISO technical committees. Every member body interested in a subject for which a technical committee has been authorized has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work.

Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council.

International Standard ISO 6438 was developed by Technical Committee ISO/TC 46, *Documentation*, and was circulated to the member bodies in June 1982.

It has been approved by the member bodies of the following countries :

Australia	India	South Africa, Rep.
Austria	Italy	Spain
Canada	Japan	Sweden
Czechoslovakia	Netherlands	United Kingdom
Egypt, Arab Rep. of	Poland	USA
Germany, F.R.	Portugal	
Hungary	Romania	

No member body expressed disapproval of the document.

Documentation — African coded character set for bibliographic information interchange

1 Scope and field of application

1.1 This International Standard contains a set of 60 African graphic characters with their coded representations. It consists of a code table, a legend giving for each character its name and its use, and explanatory notes. The list of African languages in annex A is for information only and is not part of this International Standard.

1.2 These characters, together with characters in the international reference version of ISO 646 (ISO escape sequence ESC 2/8 4/0), constitute a character set for the international interchange of bibliographic data in African language alphabets.

1.3 This International Standard contains special characters which are peculiar to African languages in Latin script. Special characters (including accents and diacritical marks) which are used also by other languages with Latin orthography, and may occur in African languages as well, are defined in ISO 5426.

2 References

ISO 646, *Data processing — 7-bit coded character set for information interchange.*

ISO 2022, *Information processing — ISO 7-bit and 8-bit coded character sets — Code extension techniques.*

ISO 2375, *Data processing — Procedure for registration of escape sequences.*

ISO 5426, *Extension of the Latin alphabet coded character set for bibliographic information interchange.*

3 Implementation

3.1 The implementation of this coded character set in physical media and for transmission, taking into account the need for error checking, is the subject of other ISO publications. (See annex B.)

3.2 The implementation of this International Standard is in accordance with the provisions of ISO 2022 and ISO 2375 and is identified by the following escape sequences :

G0 : ESC 2/8 4/13

G1 : ESC 2/9 4/13

G2 : ESC 2/10 4/13

G3 : ESC 2/11 4/13

3.3 The unassigned code positions in the code table are not to be utilized in the international exchange of bibliographic data.

4 Code table

b₇	0	0	1	1	1	1
b₆	1	1	0	0	1	1
b₅	0	1	0	1	0	1

b₄	b₃	b₂	b₁		**2**	**3**	**4**	**5**	**6**	**7**
0	0	0	0	0			K	ʞ	Ʇ	ʇ
0	0	0	1	1				ɬ	⊥	t
0	0	1	0	2	Ɓ	ɓ				
0	0	1	1	3	Ƈ	ƈ		ɱ	Ʊ	ʊ
0	1	0	0	4	Ɗ	ɗ			∪	ʋ
0	1	0	1	5	Ⱶ	ɟ			X	x
0	1	1	0	6				ɳ	Y	y
0	1	1	1	7	Ɛ	ɛ	ŋ	ɴ	Ƹ	ʒ
1	0	0	0	8	Ǝ	ə				ʕ
1	0	0	1	9			Ɵ	ɵ		ʔ
1	0	1	0	10	Ƒ	ʃ	Ɔ	ɔ		⊙
1	0	1	1	11	Ɠ	ɡ	Ƥ	ƥ		|
1	1	0	0	12	ɣ	ɤ				‡
1	1	0	1	13	Ħ	ħ		ɾ		!
1	1	1	0	14						‖
1	1	1	1	15	ɩ	ɪ	Ɯ	ʃ		

5 Legend

Letter capital	Letter small	Name	Position in Code Table capital	Position in Code Table small
Ɓ	ɓ	Bilabial voiced implosive	2/2	3/2
Ƈ	ƈ	Post-alveolar or palatal ejective	2/3	3/3
Ɗ	ɗ	Alveolar voiced implosive	2/4	3/4
Đ	ɖ	Alveolar voiced retroflex	2/5	3/5
Ɛ	ɛ	Open mid front vowel	2/7	3/7
Ǝ	ə	Mid-central vowel; schwa	2/8	3/8
Ƒ	ƒ	Bilabial unvoiced fricative	2/10	3/10
Ɠ	ɠ	Velar voiced implosive	2/11	3/11
Ɣ	ɣ	Velar voiced fricative	2/12	3/12
Ħ	ħ	Pharyngal unvoiced fricative	2/13	3/13
Ɩ	ɪ	Open high front vowel	2/15	3/15
Ƙ	ƙ	Velar unvoiced ejective	4/0	5/0
	ɬ	Laterial unvoiced fricative		5/1
	ɱ	Labio-dental nasal		5/3
	ɳ	Alveolar nasal retroflex		5/5
	ɲ	Palatal nasal		5/6
Ŋ	ŋ	Velar nasal	4/7	5/7
Ɵ	ɵ	Close mid-back vowel; open high-back vowel	4/9	5/9
Ɔ	ɔ	Open mid-back vowel	4/10	5/10
Ƥ	ƥ	Bilabial unvoiced ejective	4/11	5/11
	ɽ	Retroflex flap or rolled retroflex		5/13
Ʃ	ʃ	Post-alveolar unvoiced fricative	4/15	5/15
Ƭ	ƭ	Alveolar unvoiced ejective	6/0	7/0
Ʈ	ʈ	Alveolar unvoiced retroflex	6/1	7/1

Letter		Name	Position in Code Table	
capital	small		capital	small
Ʊ	ʊ	Open high back vowel	6/3	7/3
∪	∪	Bilabial voiced fricative	6/4	7/4
Χ	χ	Uvular unvoiced fricative	6/5	7/5
Ɣ	ɣ	Glottalized palatal semivowel	6/6	7/6
Ʒ	ʒ	Post-alveolar voiced fricative	6/7	7/7
	ʕ	Pharyngal voiced fricative		7/8
	ʔ	Glottal stop		7/9
	ʘ	Bilabial click		7/10
	ǀ	Dental click		7/11
	ǂ	Alveolar click		7/12
	ǃ	Retroflex click		7/13
	ǁ	Lateral click		7/14

6 Explanatory notes

6.1 Most African languages are written in Latin script. For many of them the 26 letters of the Latin alphabet are, however, not sufficient for the representation of all phonemes. Therefore they require special letters as well as diacritical marks. Some languages make use of different kinds of type font to distinguish between letters; a letter printed in italic or in heavy type represents a sound different from the same letter in normal type.

6.2 This African character set defines the special characters which are peculiar to the major African languages (see list of African languages in annex A), which are unknown to other languages with Latin orthographies. 36 characters are listed in alphabetical order. Some graphics are used both as capital and as small letters. As a rule they have been coded as small letters. There are also characters where a capital letter does not exist.

The characters are laid out so as to facilitate automatic conversion from capital to small letters, as the small and capital letter of a character differ in one bit only.

6.3 For transmission of diacritical marks and accents ISO 5426 shall be used.

Digraphs or ligatures, which some African languages employ instead of special letters, are treated, for data processing purposes, as two letters.

Special control characters will be required for the selection of type font and for superscript.

6.4 Some languages have had more than one orthography in the course of their history. In this case all orthographies have been taken into consideration in which bibliographic information exists.

Annex A

List of African languages

(This annex does not form part of this International Standard.)

This list is given to show which African languages were taken into account.

NOTE — If need should arise to process a letter which is not contained in the African character set because the language was not taken into consideration, the Secretariat of ISO/TC 46 or ISO Central Secretariat should be notified for a possible expansion of this International Standard.

acoli	kakwa	pokot
ankwe	kalanjin	
	kanuri	rolong
bambara	karanga	ronga
baileke	kasem	
bari	kele	serer
basa	kikuyu	shilluk
bemba		shona
birom	llango	somali
biwa	limba	songai
	lotuho	soso
chamba	lozi	sotho
	luba	swahili
dagbani	lugbara	swazi
dangme	luo	
dinka		temne
duala	mandingo	teso
	masai	tetela
edo	mbundu	tiv
efik	mende	tonga
ewe	moru	toro
		tsonga
fante	nama	tswana
ful	ndau	tumbuka
	ndebele	twi
gā	ngala	
ganda	nilamba	venda
	nkondo	
hausa	nuer	wolof
herero	nupe	
	nyanja	xhosa
idoma	nyaturu	
igbira	nyoro	yoruba
igbo	nzema	
ijo		zande
ila	pedi	zulu

Annex B

Related publications

ISO 962, *Information processing — Implementation of the 7-bit coded character set and its 7-bit and 8-bit extensions on 9-track 12,7 mm (0.5 in) magnetic tape.*

ISO 1113, *Information processing — Representation of the 7-bit coded character set on punched tape.*

ISO 1155, *Information processing — Use of longitudinal parity to detect errors in information messages.*

ISO 1177, *Information processing — Character structure for start/stop and synchronous transmission.* [1]

ISO 1745, *Information processing — Basic mode control procedures for data communication systems.*

ISO 6586, *Data processing — Implementation of the ISO 7-bit and 8-bit coded character sets on punched cards.*

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1) At present at the stage of draft. (Revision of ISO 1177-1973.)